Climate change, population, and justice

Climate Change, Population, and Justice:

Hard choices to avoid tragic choices

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Introduction

Let us begin with a minimal understanding of global and intergenerational justice. I take the former as requiring that no-one in current generations is avoidably unable to live a decent human life: one with a secure opportunity to satisfy central human interests. The latter I take as requiring that future generations are left also with the opportunity for decent lives. These are very limited accounts but with significant implications. One is that doing intergenerational justice requires acting effectively on global climate change, including mitigation, in order to leave future generations able to live decent lives. This is so well established that I will take it as a starting assumption.[1]

Given this, we face a danger: within a few generations, basic global justice and intergenerational justice could become incompatible if the human population grows fast enough.[2] Future generations would be outside the circumstances of even basic justice. It would be unable to feed and shelter everyone, and otherwise protect basic needs, except by denying its successors the resources to feed and shelter themselves and/or exposing them to the serious health and other costs of global climate change. The choice faced by such a generation

[1] E.g. IPCC (2014) p. 13-16, 17.
[2] Wissenburg (1998) p. 80-81, Cafaro (2012) p. 55, Cripps (Forthcoming), Robeyns (Unpublished-b).

would be 'tragic', by which I mean that whatever decision is made, it would have morally terrible ramifications.[3] It would conflict with even the most basic considerations of what we owe one another as human beings.

This paper asks two questions. Do current generations also face a tragic choice, because there is no way to avoid bequeathing this legacy without adopting population policies which are themselves morally terrible? And if there is such a way, can we do so without making morally 'hard' policy choices?

By morally hard choices I mean those where something must be done against which there are generally strong moral reasons, although the truly terrible alternatives of tragic choices can be avoided. At the individual level, a choice between killing one innocent person and another would be tragic. A choice between lying to one person and breaking a promise to another would be morally hard. So too would be that between killing one person and breaking a promise to another. This latter is 'hard' not in the sense that there is no clear right way to act but because even the less awful alternative involves a line of conduct against which, other things being equal, there is a strong moral presumption.

In the current context, consider the following alternatives: violating basic human rights; demanding unbearable sacrifices of the badly off; failing to secure basic interests or rights for some children; extreme interference with the family, to the extent of removing children from otherwise adequate parents; reducing the starting position of some children relative to others (a form of institutional unfairness); or mild to moderate interference with the family. The first four are

[3] Gardiner (2010) p. 300-302.

so terrible that any choice between them would be tragic. The last two are morally hard options.

I will argue that, beyond such choice-providing measures as are already required by basic global justice, collective action to curb population growth necessitates taking one or more of these options. However, there is reason to hope that the tragic legacy can be avoided without resorting to the first four alternatives. Or so the first part of this paper will maintain.

The second part will argue that hard choices are unavoidable. An apparent way out turns out itself to be another hard option. This would be to rely on prompt action on global injustice and climate change, combined with technological innovation, to avoid the tragic legacy without further, incentive-changing population policies. However, there is a presumption against taking a collective gamble with such morally desperate stakes. Moreover, it involves another form of institutional unfairness: collectively imposing increased burdens on some adults as a result of the choices of others.

Avoiding tragic choices

Let us begin with the claim that we risk bequeathing a tragic legacy. To do basic intergenerational justice, greenhouse gas emissions must be curbed, natural resources preserved, and adaptation mechanisms developed, until future generations are left with the opportunity for a universal decent human life. To achieve basic global justice, this must be done without leaving anyone in this generation avoidably without this opportunity. The larger the human population,

the more challenging this two-fold task. Ultimately, the two ends could become incompatible.[4]

This is no merely hypothetical worry. World population, 7.2bn in 2014, is predicted to grow as shown in Table 1, and considered unlikely to stabilise before 2100.[5]

Table 1: United Nations World Population Predictions[6]

	2050 (low)	2050 (med.)	2050 (high)	2050 (cons. fert.)	2100 (low)	2100 (med.)	2100 (high)	2100 (cons. fert.)
Predicted world population (millions)	8342	9551	10868	11089	6750	10854	16641	28646
Assumed fertility (2045-50 & 2095-2100)	1.78	2.24	2.71	3.28	1.51	1.99	2.47	4.61

Not only are current resource use and emissions unsustainable (globally, we use the equivalent of 1.5 planets annually year[7]) but the more people there are, the lower we must go on the development scale to find a country whose average lifestyle would be globally sustainable. For the 2010 world population (6.9bn), this occurs at roughly the development level of Ghana, 138th on the Human Development Index.[8] This is less than our current population, well below even the lowest variant UN forecast for 2050, and less than half the high forecast for 2100.

[4] There is a distinction between constraining population to maintain the circumstances of basic justice, and seeking an 'optimal' population in terms of a higher standard of human life and/or protecting non-humans. This paper focuses on the former.
[5] Gerland *et al.* (2014) p. 234.
[6] UN DESA (2013) p. 2, 12.
[7] McLellan *et al.* (2014) p. 32.
[8] McLellan *et al.* (2014) p. 38-39, UN Development Programme (2014a).

Before asking whether this already imposes a tragic choice, I must clarify an important point. Understandable objections are made to any attempt by western environmentalists to focus on global population growth, which is driven more by the developing world, rather than on per capita emissions levels in the west, historically responsible for very great environmental damage.[9] This paper fully recognises this. Far from addressing population in isolation, it *starts* with the central importance of effective global action to secure basic global justice, mitigate climate change, and preserve natural resources. Thus, it advocates from the outset policies to improve the condition of the vulnerable through transfers from and lifestyle changes by the global affluent.

However, this very starting point means that our concern must be with overall population growth. If the lifestyles of the increasingly numerous global poor must be improved, the environmental impact of any such improvement cannot be ignored. To assume that they are entitled to a decent life is to assume that their numbers matter too.[10]

Tragic scenario 1: coercion as already necessary

Policies to slow birth rates fall into three categories.[11] *Choice-providing* measures, though describable as population policies, are not exclusively such but are required for basic (especially gender) justice. They include provision of

[9] See Gardiner's critique of Hardin. (Hardin (1968) p., Gardiner (2001) p., Gardiner (2011) p. 433-454.)
[10] Cafaro (2012) p. 53-55, Cripps (Forthcoming).
[11] Cripps (Forthcoming). I am taking it as straightforwardly impermissible to address population size by causing people to live less long. Another alternative is to exploit the link between parental age and population size. This deserves consideration, but I hesitate to rely on it. Parental age already increases with development, education and empowerment of women. Beyond the existing norm in developed countries, asking it might be asking an unacceptable sacrifice. Despite medical advances, women who delay childbearing well into their 30s run a significantly increased risk of infertility.

contraception, education and opportunities for women, and basic security. *Incentive-changing* policies range from the soft (educational and social campaigns; positive financial or economic incentives) to the hard (restriction of current policies, such as child allowances or tax credits, which spread child-rearing costs; negative incentives such as fines).[12] *Directly coercive* policies forcibly interfere with couples or individuals to prevent them having (live) children. They involve infanticide, forced abortion or sterilisation, or otherwise preventing unprotected sexual intercourse (or otherwise conceiving a child).

If directly coercive policies were the only way to avoid bequeathing the tragic legacy, current generations would face a tragic choice.[13] Such policies violate basic human rights to bodily integrity or privacy. They are morally unthinkable.

However, for this to be the case, the two other sets of population policy would have to be known to be ineffective or impossible. In fact, there is space – and hope – for both. Rather than invariably reflecting individual preferences, family sizes often result from lack of contraception, or of the education and empowerment needed for informed, free procreative choices.[14] Even where parenting results from such choices, incentive-changing policies, which seek to change individual's preferences or the way they regard the situation, lie between a collective action problem of this kind and the necessity of coercion.[15]

[12] Cafaro (2012) p. 47.
[13] E.g. Hardin (1968).
[14] UN DESA (2013) p. xvii.
[15] Gardiner (2011) p. 446-8. Another case against coercion is that it has been questioned whether forcible measures *are* more effective, in terms of establishing self-maintaining long-term lower fertility trends, than a combination of empowerment, education, and financial incentives. (E.g. Sen (1996). However, his reliance on a particular case study has been questioned. (Kates (2004) p. 66-68.))

Moreover, the situation is one of uncertainty.[16] The UN figures demonstrate the difference made even by a 0.5 children/women change in average fertility. Further uncertainty surrounds the exact impact on birth rates of effective action on basic global justice. Given this, the moral presumption must be against leaping to the worst case interpretation, if that means doing what would otherwise be impermissible. Another way of putting the central dilemma of this paper is as follows: how not to leave future generations undoubtedly facing a choice between coercion and leaving the circumstances of basic global and intergenerational justice.[17] But that 'undoubtedly' does not yet apply. Being in a situation which *might* turn into a tragic choice scenario does not justify acting as though we were already there.[18] (The precautionary principle, to which I will later appeal, loses its plausibility when the precautionary measure is morally terrible.)

Tragic scenario 2: human right to decide family size

On another line of thinking, we already face a tragic choice because even incentive-changing population policies violate an absolute, unlimited basic right to decide family size.[19] Such a right, on some viewpoints, is grounded in a central human interest and violated by any collective interference.[20]

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[16] Albeit less so than previously thought, however: according to Gerland *et al.* (2014) p. 234., a 2100 population of 9.6-12.3bn is 80 per cent likely.
[17] Cafaro (2012) p. 51, Cripps (Forthcoming). By 'circumstances of justice' I mean, uncontroversially, those in which it is both possible for some institutional scheme to secure for all the opportunity for a decent life, and necessary (given the limits of individual altruism) to have such a scheme in order to do so.
[18] Heyward (2012) p. 727.
[19] Note that choice-providing policies not only would not violate but are a necessary part of fulfilling any such right. Plausibly construed it would, of course, have to include the right to decide *not* to have (more) children.
[20] One reading of the UN position. (UN Population Information Network (1994) p. 7.3.)

This can be forestalled. Even if the opportunity to parent were a central human interest, it need not follow that there is such an interest in having as *many* children as desired. Rather, a persuasive view has been defended between this extreme and the opposite one on which the decision to parent at all is just another lifestyle choice.[21] On this intermediate view, a genuine, secure opportunity to have and rear at least one child is necessary for a decent human life.[22] This might be defended in different ways: as the opportunity to enjoy a unique relationship, and/or pass something of oneself on after death.[23] However, this desire to procreate or parent becomes less of a need beyond one child, and increasingly 'want-like' as the number of children increases.[24]

The claim is not that further children do not add huge value to parents' lives, or that parents do not strongly desire them. (Witness the health risks many women are prepared to take.) Nor is it the case that they are not reasonably wanted on other grounds, such as giving an existing child a sibling. However, other activities add huge value to the lives of other persons; who is to say they don't add as much? These parents already have *an* opportunity to experience any unique goods of parenting. It is not clear why the ambition to go on doing so with more and more children should be treated differently from other ambitions, such as that to climb ever more mountains.[25]

This paper is compatible with a fundamental interest in the opportunity *to parent*. Indeed, the tragic legacy can be reformulated in these terms: a generation

[21] E.g. Conly (2005), Overall (2012) p. 19-33, 180-84, Gheaus (Unpublished), Robeyns (Unpublished-a). For the other extreme view, see Young (2001).
[22] I will not discuss whether this interest can only satisfied by parenting one's own biological offspring. In order to be adopted, children have to come into the world.
[23] E.g. Dyck (1973) p. 74-76, Robertson (1994) p. 24, Brighouse and Swift (2006) p. 91-101.
[24] Terminology from Robeyns (Unpublished-a). See also Conly (2005) p. 107.
[25] Analogy adapted from Bou-Habib and Olsaretti (2013) p. 432.

unable to hand on the conditions for a decent human life would have either to sacrifice its children's prospects, or refrain from having them, i.e. sacrifice this interest.[26]

Equally, however, I do not *assume* such a central human interest. For those unconvinced by the unique value of the parent-child relationship, it is necessary only to accept that basic justice guarantees everyone *some* opportunity to develop and live by her conception of the good or plan of life, and that parenting is, for very many, integral to that.[27] This makes the case for protecting the opportunity.

It does not, however, imply that scope to parent more and more children should be ring-fenced.[28] There is a distinction between being enabled to pursue one's conception of the good or plan of life *at all*, and being enabled to make unlimited socially or intergenerationally expensive decisions about how extensively to do so. Again, if those who choose to parent must be allowed or enabled to have six children, why shouldn't our mountaineer be allowed or enabled to climb all the world's mountains? He might consider his life every bit as blighted if he cannot. But, of course, no collective scheme can do this for all conceptions of the good.

Perhaps this is supposed to be a special case because large families are often part of religious or cultural conceptions of the good. However, it is has yet to be shown why such views should 'trump' the equally strongly held convictions of others. Rather, given different conceptions of the good, their adherents –

[26] Gheaus (Unpublished), Wissenburg (2010).
[27] For a Rawlsian version of this argument, see Bou-Habib and Olsaretti (2013) p. 432-3. This is presented as a case for state support for parents, but it is unclear that this would justify additional support as the number of children increased.
[28] As Heyward suggests. ((2012) p. 719.)

including the religious – must be reasonable in meeting others on common ground when it comes to what is to be guaranteed as a matter of justice.

Thus, this tragic construal of our situation is based on an illusion. We need not assume an all-trumping, interest-based right in choosing family size which renders impermissible any collective action to influence procreative behaviour. However, a constraint has been introduced. Incentive-changing population policies can stay on the table, but only once the opportunity to parent at all has been secured.

I leave it open exactly where the line lies between 'need' and 'want' (or 'fundamental interest' and 'interest'). The discussion above suggests that it could be drawn after one child, or – more plausibly – that there is a gradual transition thereafter.[29] If the latter, the appropriate policies would provide increased incentives to refrain from further procreation as the number of children increased.

Tragic scenario 3: asking unbearable sacrifice

Although an interest-based basic right to decide family size has been dismissed, there remain circumstances under which large families count as a need, because other fundamental interests depend on them. For women with no other opportunities, this may be the only route to social regard. For couples unable to protect their basic needs in old age, many children may be the closest they can get to long-term security, especially where infant mortality is high.[30] Note also

[29] Overall upholds a basic *right* to two children per couple. (Overall (2012) p. 180-4.) This is convenient for those of us with two children, but I find her defence unconvincing. It is not clear why each parent needs to replace herself in numerical terms.
[30] Gerwith (1979) p. 152, Carter (2004) p. 354, Cripps (Forthcoming).

that the opportunity *to parent* would be inadequately secured by being able to have one or two children, if they were unlikely to survive.

Under such circumstances, policies incentivising reduced birth rates could demand unacceptable – because unbearable – sacrifices of those already very badly off. Of course, nuanced incentive-changing schemes would change precisely these pay-offs, but the danger would then be of effectively coercing women or couples into procreative restraint.[31] Moreover, too blunt-headed an economic scheme, operating against a background in which women lack empowerment, could demand just such sacrifices of them, for example by inducing husbands to make decisions without consulting them.

Thus, incentive-changing population policies count as non-terrible options only where sufficient choice-providing policies are in place. This need not put this generation as a whole in a tragic choice situation – for many, basic needs do not depend upon having a large family – but it has important implications.

It rules out immediately introducing incentive-changing policies in some developing countries (except among the affluent minority). Given that it is in just such countries that populations are growing fastest,[32] this is another case for urgency in enabling and incentivising developing states to introduce choice-providing measures. It could also put pressure on more developed states, even those with falling birth rates, to exploit incentive-based means of reducing them more rapidly. This might be necessary (alongside redistribution, and emissions reductions) to accommodate some of the growth elsewhere.

[31] Sen (1996) p. 1059.
[32] UN DESA (2013) p. xvi.

Tragic scenario 4: basic injustice to children v. extreme interference with families

Recall the four categories of incentive-changing population policy. One includes negative economic incentives. Another limits to first children, or progressively reduces after them, the measures in place in many states for relieving parents of parenting costs. These range from child allowances to free education. A third includes positive economic incentives for procreative restraint. A fourth uses education, campaigning and other measures to cultivate a norm of small families, with associated social approval or disapproval. The latter two might be termed 'soft' incentive-changing policies. Although any effective overall scheme would need global reach, I will assume this is done via individual states.

We have seen that incentive-based interference need not violate a human right or (invariably) impose an unbearable sacrifice. However, this generation would face a tragic choice if all available options were to turn out to be morally terrible on other grounds, as directly coercive policies are.[33] The danger is that incentive-changing policies force a tragic choice between basic injustice to children and extreme interference with the family.

This arises from one salient circumstance: children are generally brought up by their parents. Their prospects and opportunities depend on the educational support, lifestyle, nutrition, and emotional grounding that those parents can give them.[34] Thus, the first two policy measures, above, would undermine some parents' ability to secure their children's basic needs if they were consistently applied to those who had large families despite them. But it is incompatible with

[33] O'Neill (1979) p. 35.
[34] E.g. Dyck (1973) p. 78, Bayles (1975) p. 50.

basic justice for an institutional scheme to deprive children of central interests. Regardless of how many siblings they have, all children have the same basic moral entitlements.

Guarding against this would require changing the way in which children's central interests are provided for: i.e. interfering with the family. The danger is that it would require doing so to an extreme degree. Removing children from otherwise adequate parents not only means being prepared entirely to undermine the integrity of the family – an institution widely taken to have great value in itself[35] – but plausibly violates a basic right of parents, especially mothers, who have been through pregnancy and birth.[36] Thus, it represents a moral roadblock even assuming (which is by no means certain) that significant cost to the children could be avoided by transferring them to 'equally good' parents.

Nor are these concerns limited to the first two policy types. Consider educational and other promotion of procreative restraint.[37] If parents of 'additional' children are being told, in effect, that they should not have had them, the danger is that these children will be considered – and consider themselves – second class citizens. Assuming (reasonably) that a meaningful opportunity for self-respect is a central human interest,[38] a policy which made this impossible for some would be incompatible with basic justice.

These concerns draw on a very real tension. I will later argue that implementing incentive-changing population policies means making hard moral

[35] E.g. Schoeman (1980) p., Macleod (2002) p. 213-217, Munoz-Darde (2002) p. 268.
[36] Gheaus (2012).
[37] Heyward (2012) p. 717-18.
[38] Rawls (1971) p. 386-391.

choices. However, they are insufficient to demonstrate that we already face a *tragic* choice.

Negative incentives might be introduced, and changes made to existing cost-sharing mechanisms, in a nuanced manner. Some services might be provided directly to children, while costs are reaped back (perhaps later) from parents. (E.g. through state education, nursery care, and health care, after-school reading clubs, free meals in schools and nurseries, combined with an increasing tax on parents with more than one child.)

Ultimately, of course, unless all provision for some children is removed from some parents, there will be some number of children per family at which it is impossible both to protect their basic needs and apply such policies. However, the extent to which this is a real danger depends on how far potential parents *would* fail to be motivated by such policies, and so on empirical work beyond this paper.[39] It must be left, then, as a theoretical risk which, if it turned out to be practically significant, would impose limits on the first two incentive-changing or internalisation policies, possibly ruling them out altogether.

Similarly with educational or cultural measures, the theoretical danger of undermining a central interest must be acknowledged, contingent on detailed empirical studies. However, this does not justify automatically discounting all such measures as impermissible. Rather, the onus would be on those introducing them to combine the message of procreative restraint with emphasis on the equal moral status of all children.

[39] One early survey was inconclusive but found some evidence of behavioural change. (Berelson (1974) p. 5-6.), However, reliance on existing research is complicated by the fact that incentives have sometimes been introduced without the choice-providing background.

The point is not that some particular third, fourth, or tenth child 'should not' have existed. It is that, overall, families should be smaller. The distinction is important: compare parents of many with a mother who predictably, seriously damages her health (and so, indirectly, the lives of her existing children) to have another baby. One might say that she was irresponsible, even wrong, without implying that it is a bad thing that *that* new person, with its unique traits and potential, was brought into the world, and certainly without suggesting that that child is entitled to less consideration than anyone else. Nor need this one social norm dominate psychological development. Indeed, the knowledge that their parents must have wanted them very much, to act thus contrary to society, would itself be one factor in building self esteem.

Moreover, none of these concerns have counted against the third possibility identified above: small positive economic incentives for procreative restraint, against a background of basic justice and adequate opportunity for all children.

Making hard choices

I have found reason to hope that, in our current generation, we could avoid bequeathing a tragic choice without taking morally terrible options on population policy. This is so even if we must go beyond choice-providing to some incentive-changing population policies. The remainder of this paper will argue that, nonetheless, we face morally hard choices. One apparent way out – assuming that population growth will fall sufficiently without incentive-changing measures – turns out itself to represent a morally hard choice. And incentive-changing policies force morally hard choices of their own.

Hard option 1: the technological gamble

Perhaps this paper has been too pessimistic in characterising current generations' predicament. On a more optimistic view, there is no need for hard, let alone tragic, choices about population policy so long as we do the right thing now in terms of tackling climate change, natural resource depletion, and global injustice. Fertility rates fall with development[40] and as a result of those choice-providing measures which form part of basic justice: contraception, education and opportunities for women, and basic security. If we could rely on their falling enough, there would be no need for incentive-changing policies.

The suggestion is not that doing global basic justice alone could avoid bequeathing the tragic choice – quite the reverse, since development increases per capita environmental impact – but that it could do so in conjunction with concerted action to mitigate that impact. In other words, given a wholehearted combination of emissions cuts with global redistribution, women's education and empowerment (including contraceptive availability), population would stabilise soon enough and at a low enough level to keep our children and grandchildren within the circumstances of basic global and intergenerational justice.

Moreover, impact on the environment results from a combination of three factors: population size, affluence (or consumption) and technology (or the limitations thereof).[41] A modified version of the optimistic view emphasises this last factor, arguing that even if immediate action on basic global justice and

[40] UN DESA (2011) p. 12.
[41] The IPAT equation. (Ehrlich and Holdren (1972) p. 20.)

climate change could not reduce population growth sufficiently to prevent the tragic legacy, further investment in technology could render any remaining population growth sustainable.[42] The point, again, would be that we needn't consider incentive-changing population policies.

These views make crucial points whether or not the apparent 'ways out' are viable. The 'population factor' – the prospect of bequeathing a tragic choice – is yet another case for urgent collective action to combat basic global injustice and climate change.[43] Moreover, the force of choice-providing policies must not be underestimated. The UN predictions, acknowledgedly, might need reducing if there were a massive upscale to 120m new users of family planning services by 2020.[44] Equally of course, technological investment, funded by the global affluent, is essential. This is particularly so if, as suggested, incentive-based population policies cannot immediately permissibly be introduced in parts of the developing world.

However, accepting either optimistic view involves taking a gamble: one with the morally terrible at stake. This, I suggest, renders it unjustifiable to rely on the original optimistic view, and makes relying on the modified one a morally hard option.

Begin with the claim that prompt action on global and climate justice will be sufficient to avoid bequeathing a tragic legacy, in themselves and because they reduce population growth. This is highly doubtful. Significant progress in choice-providing terms is *already* built into the UN forecasts.[45] The challenge, moreover, is to secure enough development not only to do basic global justice and reverse

[42] Heyward (2012) p. 722-723.
[43] Cripps (Forthcoming).
[44] UN DESA (2013) p. 31.
[45] UN DESA (2013) p. xvii, Robeyns (Unpublished-b). See also Table 1.

population growth – quickly – but to do so whilst acting on climate change and natural resource preservation. Recall that the crossover point for non-sustainability, even for 6.9bn people, is at around the Ghanaian development level: a country with 18.7 per cent of its population near multidimensional poverty, 12.1 per cent in severe poverty, and a 2013 fertility rate of 3.9 children per women.[46]

There is also the time factor. Every year of business as usual, with increasing impact from population growth and emissions, reduces the available per capita ecological footprint. Nor can moves towards basic global justice, including choice-providing policies, take effect overnight. (2020 is only five years away.) Kerala, the Indian case study held up as an exemplar of the effectiveness of empowerment and education, may be a special case, primed by generations of cultural change.[47]

My claim is not that such measures could not suffice. It is that precautionary considerations pull strongly against relying on their so doing. Borrowing an argument from the general climate justice debate, a precautionary approach can be appropriate where exact risk levels are unknown, so long as three conditions are met: some outcome would be terrible; the mechanism which would bring it about is understood and the conditions for its functioning are accumulating; and the costs of avoidance are comparatively non-excessive.[48] The first two conditions are met here, motivating at least a thorough attempt to satisfy the third. In other words, it would be unjustifiable to take this gamble without seriously considering any non-tragic alternatives. (Note the contrast with earlier

[46] UN Development Programme (2014b), World Bank (2014).
[47] Kates (2004) p. 66-68.
[48] Shue (2010) p. 147-8.

in the paper, where I denied that the risk of already being in a tragic situation could justify acting as though we undoubtedly were and moving straight to the morally impermissible: coercion. As a 'cost of avoidance', this would *not* be comparatively non-excessive.)

Consider now the view on which technological progress could accommodate any population growth not prevented by a move towards basic justice. Clearly, technological investment would be one non-tragic option. It makes bequeathing a tragic choice less likely, at the non-excessive cost of demanding more, financially, of the global affluent. The modified, technological, gamble is thus better than relying on the original optimistic view. However, the decision to do only this, rather than also use incentive-changing population policies, would itself be a morally hard choice.

This is partly because it still *is* a gamble. Technology is not some 'get out of jail free' card. Considerable investment is essential already: new and up-scaled adaptation and renewable energy technology are essential to tackling climate change and global injustice. This itself is reason for caution about relying on future innovations also to accommodate population growth. Moreover, if, as reported, it would take 1.3 planets to feed 9.2bn people with a low carbon footprint and the comparatively non-excessive diet of the average Malaysian,[49] a 'green technology' revolution could be insufficient. Technology would also be needed massively to improve food productivity.

Again, we cannot rely on this happening in time. Technological development is uncertain, and has not made much headway even with mitigating climate

[49] Pollard *et al.* (2010) p. 86, Cripps (Forthcoming). (Malaysia is 62nd on the Human Development Index (UN Development Programme (2014a)).)

change.[50] Previous technological revolutions took 70-100 years to be realised; this one would have 40, at most.[51]

Thus, while there is a clear case for additional technological investment, alongside immediate action to tackle global injustice and climate change, relying on it should be weighed as another non-ideal option in a hard choice situation, against any other non-tragic alternatives.

Hard option 2: institutional unfairness across adults

There is another way in which this technological gamble is a morally hard option: it involves implicitly accepting institutional unfairness.

Suppose we were, collectively, to tackle climate change and basic global injustice. This would require some enforceable institutional scheme, ultimately global but in practice almost certainly implemented through states. For the sake of argument, suppose also – contrary to the section above – that such a scheme, with additional technological investment, would limit population growth enough to avoid the tragic legacy.

Even within these limits, population size would matter. The cost of any such global scheme varies with population size: the more people there are, the more expensive it is to provide for them without jeopardising future generations. What this total number is depends on how many new persons come into being. New persons come into being because their parents cause them to exist.[52] Many of those parents choose freely and knowingly to do so (or at least foreseeably to

[50] Renewables accounted for 8.5 per cent of global electricity in 2013. (Frankfurt School-UNEP Centre/BNEF (2014) p. 11-12.)
[51] UN DESA (2011) p. x-xiv.
[52] Wissenburg (2010).

risk so doing).[53] Thus, this scheme would impose increased per capita burdens on all as a result of the unconstrained choices of only some individuals or subgroups. (I will refer to this increased burden as the environmental and basic justice cost of additional persons.)

This may not conflict with basic global justice. However, it is contrary to the stronger, more egalitarian views that many have about the requirements of distributive justice: views on which an individual's opportunities or burdens, even above the level of basic justice, should be luck-insensitive but choice-sensitive. Thus, at the very least, there is a problem of institutional unfairness when a mutually coercive collective institution not only fails to correct uneven, luck-sensitive burden allocations, but actively *imposes* them.

This implication reinforces the claim that the technological gamble, far from being a straightforward way out of our collective predicament, is one morally problematic option among others. It also provides another reason seriously to consider some of the incentive-changing policies listed above. The first two – economic penalties, or limiting measures currently used to *externalise* some costs of rearing children – could be used to counter the institutional unfairness: to internalise environmental and basic justice costs by transferring any increased collective burden to those choosing to parent.[54]

Before turning to the hard choices associated with such policies, two points of clarification should be made. Firstly, the idea is not that only the costs associated with procreative choices should be internalised. This would be morally repellent

[53] There are exceptions, e.g. rape victims, to whom these arguments do not apply. (For a fuller discussion, see Wissenburg (2010).) I acknowledge the practical difficulty of building *this* into policies, but set it aside for now.
[54] Casal and Williams (2004) p. 160-162. On internalising the costs of children more generally, see Rakowski (1993) p. 153-155.

given the environmental impact of consumption. Rather, I am assuming that a global institutional scheme could, less problematically, internalise the burdens resulting from non-essential emissions or resource-use choices. (E.g. through a carbon tax on such emissions or tradable personal carbon allowances.[55]) The unfairness would lie in exempting procreative decisions, given that they also impose environmental and basic justice costs.

Moreover, it is inappropriate to assign full moral responsibility for procreative choice unless adequate choice-providing measures are in place. Where women have no access to contraceptives or no choice about sexual relations, even where parents have no other options save sacrificing central interests, the decision to parent is not a free choice. With low education and information levels, it is not adequately informed.

Thus, two assumptions bear reiterating: that the internalising/incentive-changing policies to be canvassed below are introduced *within* collective efforts to secure basic global justice and tackle climate change; and that they are not implemented where they would undermine other fundamental human interests circumstantially reliant on large families. From earlier sections, a further background requirement is that the opportunity to be a parent is protected.

Hard options 3 and 4: institutional unfairness to children v. interference with the family

Recall the four categories of population policy: negative financial or economic incentives; restriction of current externalising measures; positive incentives; cultural and educational campaigns. The first two could also be used to

[55] On the latter, see e.g. Hyams (2009).

internalise environmental and basic justice costs, thus avoiding or limiting institutional unfairness across adults.

Following earlier discussion, let us assume that incentive-changing policies need not force a tragic choice: basic injustice to children can be avoided without extreme interference with the family. This might be because only 'soft' policies are introduced, or even only positive financial incentives for restraint. (In this case, the problem of institutional unfairness across adults would remain.) However, it might be because, contingently, some negative financial incentives could be introduced or some existing externalising mechanisms revised without undermining children's basic interests or entirely breaking up the family. (Again, such changes would have to be sufficient to change behaviour, although not necessarily *fully* to internalise environmental and basic justice costs. If they did not do so, some institutional unfairness across adults would remain.) Even so, introducing them requires balancing two morally hard options: institutional unfairness across children, and some interference with the family.

If an institutional scheme decreases the resources available to larger families, some children will see their starting point made worse relative to those with fewer siblings.[56] This applies to positive *or* negative economic and financial incentives. As with institutional unfairness across adults, this is not a problem for basic justice, so long as all children can live a decent life. However, it does conflict with the idea – convincing to many – that as co-members of some shared institutional structure we owe it to each other not to impose a collective scheme which increases inequality in starting points. Whoever should bear the

[56] Wissenberg argues that any such policy would be objectionably unfair to adults who had not had all the children they wanted before it was introduced. (Wissenburg (1998).) I do not address this, since parallel concerns arise with any new liberty-limiting policy.

additional burdens of population growth (or slower population reduction), there is no morally convincing reason why they should be passed onto the 'additional' children, who did not ask to be born. Or onto their siblings.

As discussed, policy modifications can limit the impact on children: rather than cut child-orientated services (for example, meals at school or state nurseries), they might be increased alongside increased taxes on parents. However, such changes would take some control and care-provision away from parents and so constitute interference with the family. This is at odds with the widespread assumption, including within the social justice debate, that the family is an institution worth protecting even at some cost.

Moreover, it would be difficult for cultural and educational campaigns not to put 'additional' children at a relative disadvantage in terms of capacity for self-respect, even if they could avoid undermining that capacity altogether. (This would require attaching significant stigma to having more than a certain number of children, without attaching *any* to being one of many siblings.) Thus, some institutional unfairness across children looks inevitable, if the apparently softest incentive-changing policy is implemented. In introducing incentive-changing population policies, morally hard choices must be made.

Objections

Before concluding, I must address two objections. Both concern my treatment of some incentive-changing policies as also *internalising* the costs of additional children, and so avoiding or limiting institutional unfairness across adults.

Children as public goods[57]

A case has been made for internalising the environmental and basic justice costs of additional persons. However, within states, children are often considered a public good. They are future tax-payers, as well as doctors, nurses, police officers, teachers, train drivers, and sewage workers. Thus, arguably, the state should support parenting, by externalising its costs. Anything else, the argument goes, would not only be a violation of the principle of fairness (which requires individuals to contribute to collective schemes from which they receive a fundamental benefit) but also raise the spectre of undersupply.[58]

This can be resisted.[59] Recall that what is being incentivised is not having *no* children to populate the next generation, but having *fewer* of them. It is not clear that, overall, population growth within developed states *is* regarded as a good thing, or some reduction as a bad one. Numbers put pressures on resources within borders as well as across them (especially in terms of ecological goods or natural spaces). One might point out, moreover, that if citizens were really worried by decreasing birth rates purely because additional persons are an essential public good, they would happy to accept population growth through increased (skilled or child) immigration.

Moreover, our starting point for this discussion is the moral imperative of maintaining circumstances within which it is possible to do basic global and intergenerational justice. Even if this were an interstate collective action problem, with replacement rate birth rates a public good within states and a

[57] This objection is most likely in the context of precisely those developed or more advanced developing states where I have suggested that incentivising or internalising policies would first apply.
[58] E.g. George (1987), Olsaretti (2013).
[59] In fact, it is controversial whether principle of fairness arguments go through even if children *are* a public good. (E.g. Casal (1999) p. 365-8, Casal and Williams (2004) p. 156-159.)

public 'bad' taken globally,[60] basic justice would require a collective effort to solve it by changing incentives. Thus, a global scheme would have to incentivise states *to* associate population growth (or even slower population reduction) with net costs. If current arrangements, such as the way pensions are funded, provide an incentive to maintain birth rates, the onus would be on states to amend those institutional structures.[61]

An alternative approach to internalisation

The second, related objection points out that there are two sets of internalisation policy to be considered, one of which I have neglected. This involves internalising the *environmental* costs of additional children in a narrow sense, by requiring parents to reduce emissions, or ecological footprint, to accommodate them. The idea would be that everyone has sufficient footprint to meet their central human interests (including to be a parent), but those choosing to have several children would have to decrease their impact proportionally in other ways?[62]

Narrow internalisation has its attractions. A well-designed burden-sharing institutional scheme must, plausibly, make space for individual choice where compatible with basic justice. Intuitively, it should be up to a couple whether they to eat meat, travel more, or have more children. On the face of it, it is also an advantage that this option separates questions concerning the environmental burdens of population growth from more general arguments around the costs of

[60] Casal (1999) p. 370-373.
[61] Robeyns (Unpublished-b).
[62] I assume that it is not legitimate to expect additional ecological space as a reward for not parenting at all. (Robeyns (Unpublished-a), contra Young (2001).) To demand to 'trade away' a central human interest is to re-open the whole question of what one is owed by basic justice.

children, including areas in which there might be a child- or, as already highlighted, a fairness-based case for externalisation.[63]

Instead, I have focused on internalising environmental and basic justice costs in more general financial or economic terms, and so included internalisation within a broader discussion of incentive-changing policies. This is for several reasons.

The costs of mitigating climate change and preserving natural resources are not the only ones to grow with human numbers. The costs of adaptation are also increased, and of basic justice for current generations. Thus, even if this were an appropriate way to internalise some environmental and basic justice costs, it would not cover them all. Moreover, technology is needed even for mitigation. Thus, while I have cautioned against treating technological investment as a *collective* 'get out of jail free' card, funding such technology may be an alternative to emissions cutting for some *individuals* (those for whom lifestyle changes are particularly difficult) within an effective overall approach. A narrow quota scheme could limit individual choice unnecessarily.

I suspect that part of the appeal of narrow internalisation lies in worries about focusing on procreation rather than per capita emissions. This is understandable.[64] However it is, as I hope I have clarified, misplaced in the context of this paper. To reiterate, incentive-changing/internalising population policies are canvassed as possible *additions* to other measures simply taken to be necessary. These include policies to reduce ecological footprint and internalise the environmental and basic justice costs of individual lifestyle choices, above

[63] Child-orientated arguments are acknowledged even among those who reject fairness-based arguments for externalising other parenting costs, (E.g. Casal (1999) p. 374, Casal and Williams (2004) p. 163.)
[64] Cripps (Forthcoming).

the threshold for a decent life. The idea is to preserve, as far as possible, precisely the freedom of choice highlighted by the objection. If other internalising policies are combined with procreative ones, individuals and couples retain discretion on where to take the 'hit' needed for basic global and intergenerational justice.

However, this is limited by both the current requirements of basic justice *and* the overall danger of leaving the circumstances of basic justice altogether. Any scope for 'trading off' procreative against other lifestyle or emissions choices must operate within these overall limits. (Thus, incentive-changing measures might be needed beyond internalisation.)

We must also recall a key difference between procreative and other environmentally costly decisions. Absolute limits to lifestyle emissions and resource use can be collectively enforced, ultimately by prevention. However, enforcement-by-prevention of individual *procreative* limits would, given the only means currently available, violate fundamental human rights. Again, this puts more pressure on other policy options.

It is worth stressing, however, that even if I were to focus instead on narrow internalisation, it would not change the conclusions of this paper. Any such scheme would force parallel hard or tragic choices to those identified earlier, and could prompt a more pressing version of them.

One issue is the impact on a child's opportunities if the family is limited to a smaller ecological footprint than the rest of society. This potential unfairness might seem less of a concern in this narrower context, at least so long as basic interests can be met, because one can have a very satisfying and fulfilled childhood – arguably a more rewarding one – with a lower carbon footprint than

one's contemporaries, given caring and committed parents. However, the caveat is important: if parents cannot secure children's basic interests within such limits, the scheme would be basically unjust.

Moreover, it is unlikely that parents could accommodate the ecological footprints of additional children simply by making reductions themselves. If, as estimated, the average US woman increases emissions by 5.7 times her lifetime total by having a child (factoring in expectations of that child's emissions, and the descendants he/she likely to have), cuttings one's own future emissions to *zero* could not 'fund' even one additional child.[65] Instead, the scheme would have to enable parents to 'lock' these children (and any of their descendants) into a lower emissions pattern into adulthood. This requires accepting institutional unfairness across children, or even basic injustice.

If her footprint must stay much smaller (or, given the need to reduce overall emissions to zero by 2100,[66] decrease much faster than the rest of those in her society), the individual's basic interests could be threatened. Even if not, there are serious concerns about relative autonomy. While a lower-emissions life might well be as fulfilling as any other, for those brought up to it, the very fact of being committed to such a lifestyle forever, to a degree that her contemporaries are not, means this person faces a comparatively constrained set of options (particularly in terms of parenting). Compare her with the five year-old virtuoso signed up for life to a top orchestra: even if, as it happened, she rated her life as highly as many of her contemporaries do theirs, we would still feel that she had been treated wrongly.

[65] Murtaugh and Schlax (2009) p. 14.
[66] IPCC (2014) p. 18.

Another level up, the suggestion would be that any fair global scheme must allow *states* the freedom to prioritise procreative choice over other emissions choices (within the limits of basic justice). I do not have scope to address this in detail, nor (within limits[67]) is it ruled out by anything I have said. However, I have four cautionary observations.

Firstly, any moral pull of the argument depends on how the state decides to prioritise procreative freedom, in terms of legitimacy and representativeness. Secondly, there is an important difference between a single culture state, with a shared pronatalist conception of the good, and a multi-cultural one, in which the decision would amount to an unfair state subsidy for one conception of the good. Thirdly, the argument must work in reverse: if some states can make *this* choice, there is no *prima facie* reason why others should not opt collectively for higher per capita emissions and fewer children. Thus, questions would still have to be asked about the hard choices presented by incentive-changing population policies.

Finally, again, this is not primarily a debate about internalisation and fairness. This paper is motivated by the need to avoid such population growth as would force our children or grandchildren's generation to choose between basic global and intergenerational justice. There is only so far that states can go in making these emissions/procreative trade offs without coming up against that more tragic collective limit.

[67] I have elsewhere laid some limitations on any global scheme: that it cannot permissibly, without further restrictions, simply tie burden quotas to fixed population levels. Issues of institutional unfairness arise, as well as more fundamental concerns about incentivising the impermissible. (Cripps (Forthcoming).)

Conclusions

This paper has reviewed the dangers facing any collective attempt to achieve basic global and intergenerational justice without undermining the potential for future generations to do the same. If the choice were between only some of these hazards it would already be tragic. Current generations would have to violate human rights, ask unbearable sacrifices of individuals, or fail to do basic justice to children. I have argued that it is not. However, hard choices remain.

As well as immediately pursuing basic global justice, mitigating and adapting to climate change, and preserving natural resources, we must do one of two things. One is to gamble on technology to accommodate any further population growth. This also requires us to accept the institutional unfairness of a scheme which increases burdens on all persons as a result of free, informed choices made by only some of them. The alternative is *also* to introduce incentive-changing population policies: those compatible with neither extreme interference with the family nor undermining children's basic interests. This requires either unfairly limiting some children's relative starting opportunities or interfering with the family (probably both). Moreover, such policies may not entirely be able to internalise the environmental and basic justice costs of procreative choices without basic injustice. Thus some institutional unfairness across adults would have to be accepted. (In practice, more might be accepted as a legitimate trade-off against institutional unfairness to children, insofar as compatible with adequate incentive-changing.)

Given that the technological gamble *is* still a gamble, with desperately high stakes, and that these choices will only get harder (ultimately tragic) the longer

they are ignored, there seems to me to be a strong case for introducing incentive-changing/internalisation population policies where choice-providing policies are already in place, and as soon as permissible after they are implemented elsewhere. This is especially so given that some trade-offs are already widely accepted between equality of opportunity for children and preservation of the family.[68]

However, my aim has been to provide a roadmap for these difficult choices, not to make them. At the very least, I have provided a forceful reminder of the need to act *urgently* on basic global justice, climate change mitigation and adaptation, driven by emissions cuts and technology-funding by that same global elite. But I have tried also to show that we cannot neglect the possibility of addressing population directly without making a choice which is itself far from morally straightforward. As a generation, we are so placed that, whatever we do, it will involve acting against some moral presumption. As a global elite, we need to face up to the fact that this predicament is the result of our current and past combined actions and collective failures. This must be added to the already great moral tally against us.[69]

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[68] E.g. Munoz-Darde (2002) p. 261.

[69] This paper was discussed with the Edinburgh Political Theory Group, May 2015, and at the Climate Change and Non-Ideal Theory Workshop, Warwick, May 2015. Earlier versions of some arguments were presented at the Climate Justice Workshop, Oxford, July 2011, and the Time Dimensions of Climate Change Conference, Graz, September 2011. I am grateful for the feedback on all occasions, and for constructive comments at various stages from Simon Hope, Harry Cripps, and the editors of *Global Justice: Theory, Practice, Rhetoric*. I also thank the British Academy for the postdoctoral support which enabled me to embark on this project.

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